

CLAIMS

What is claimed as new and desired to be protected by Letters Patent of the United States is:

1. A data storage cartridge comprising:
a housing having a top, a bottom, a front side, a back side, a first lateral side, and a second lateral side, said housing having a first media access aperture on the top of the housing; and
a data storage medium contained within the housing, the data storage medium comprising a disk with a top and a bottom;
wherein the front side of the housing contains a first segment of reduced thickness adjacent to the first media access aperture.
2. The data storage cartridge of claim 1, further comprising:
a second media access aperture provided on the bottom of the housing;
wherein the front side of the housing contains a second segment of reduced thickness adjacent the second media access aperture.
3. The data storage cartridge of claim 1, wherein:
the first segment of reduced thickness defines an opening extending from a plane defined by the top of the housing to a plane defined by the top of the data storage medium.
4. The data storage cartridge of claim 1, wherein:
said housing further comprises a shutter assembly movable from a closed position to an open position such that the shutter assembly blocks at least part of the first segment of reduced thickness when in the closed position and exposes at least part of the first segment of reduced thickness when in the open position.
5. The data storage cartridge of claim 1, wherein:
the data storage medium comprises a holographic storage medium.
6. A data storage cartridge, comprising:

- a housing comprising a top shell and a bottom shell, said housing having a housing thickness; and
- a data storage medium contained within the housing between the top shell and the bottom shell;
- wherein said housing has an access side comprising a region of reduced thickness less than the housing thickness.
7. The data storage cartridge of claim 6, wherein:
- the region of reduced thickness defines an opening extending from a plane defined by the top of the housing to a plane defined by a top surface of the data storage medium.
8. The data storage cartridge of claim 6, wherein:
- said housing further comprises a shutter assembly movable from a closed position to an open position such that the shutter assembly blocks at least part of the first segment of reduced thickness when in the closed position and exposes at least part of the first segment of reduced thickness when in the open position.
9. The data storage cartridge of claim 6, wherein:
- the data storage medium comprises a holographic storage medium.
10. A data storage cartridge, comprising:
- a housing comprising a top side, a bottom side, and an access side, the top side of the housing defining a top plane; and
- a data storage medium contained within the housing;
- wherein said housing includes an unobstructed access path to the data storage medium from the access side, said unobstructed access path passing through the top plane.
11. The data storage cartridge of claim 10, wherein:
- said housing further comprises a shutter assembly movable from a closed position to an open position such that the shutter assembly blocks the access path when in the closed position and exposes the access path when in the open position.
12. The data storage cartridge of claim 10, wherein:

said data storage medium comprises a holographic data storage medium.

13. A data drive assembly, comprising:
a data drive, comprising a carriage assembly and a data transfer mechanism, the carriage assembly being configured to receive a data storage cartridge comprising:
a housing defining a top plane, a bottom plane, a media access aperture, and a front side containing a segment of reduced thickness; and
a data storage medium contained in the housing;
wherein the data drive is configured to receive the data storage cartridge such that as the data storage cartridge is loaded into the data drive, a portion of the data transfer mechanism passes adjacent the segment of reduced thickness and is received in the media access aperture such that the portion penetrates the top plane of the housing.
14. The data drive assembly of claim 13, wherein:
said data drive is configured to read data from a holographic data storage medium.
15. The data drive assembly of claim 14, wherein:
said data transfer mechanism comprises a first component and a second component separated by a first distance, a maximum thickness of the data storage cartridge is greater than the first distance.
16. The data drive assembly of claim 13, further comprising:
a data storage cartridge received in the carriage assembly.
17. The data drive assembly of claim 13, wherein:
the data drive further comprises a shutter opening mechanism for opening a shutter on the data storage cartridge to expose at least a portion of the segment of reduced thickness.
18. A data drive assembly, comprising:
a data drive comprising a data transfer mechanism, said data transfer mechanism having a first component and a second component separated by a first distance;

- wherein the data drive is configured to receive a data storage cartridge between the first component and the second component, wherein a maximum thickness of the data storage cartridge is greater than the first distance.
19. The data drive assembly of claim 18, wherein:
said data transfer mechanism is configured to read data from a holographic data storage medium.
20. The data drive assembly of claim 19, wherein:
said first component comprises a first signal source; and
said second component comprises either a second signal source or a detector.
21. The data drive assembly of claim 18, further comprising:
a data storage cartridge received in the data drive between the first component and the second component.
22. The data drive assembly of claim 18, wherein:
the data drive further comprises a shutter opening mechanism for opening a shutter on the data storage cartridge before receiving the data storage cartridge between the first component and the second component.
23. A method of operating a data drive assembly, comprising:
receiving a data storage cartridge in a data drive, the data storage cartridge comprising:
a housing defining a top plane, a bottom plane, a media access aperture, and a front side containing a segment of reduced thickness; and
passing a first portion of a data transfer mechanism of the data drive adjacent the segment of reduced thickness of the data storage cartridge such that the first portion penetrates the top plane of the housing as the data storage cartridge travels to a fully loaded position in the data drive.
24. The method of claim 23, further comprising:
reading data from a holographic data storage medium contained in the housing.

25. The method of claim 23 , further comprising:
passing a second portion of the data transfer mechanism of the data drive adjacent the segment of reduced thickness such that the second portion penetrates the bottom plane of the housing as the data storage cartridge travels to a fully loaded position in the data drive.
26. The method of claim 23 , further comprising:
opening a shutter on the data storage cartridge to expose at least a portion of the segment of reduced thickness.